



**caBIG**

*cancer Biomedical  
Informatics Grid*



**caBIG**

**Cancer Data Standards Repository  
(caDSR) IV  
End-To-End**



June 9, 2004

Denise Warzel

NCI, Center for Bioinformatics

# Agenda

- ▶ **Introductions**
- ▶ **Goals of Session**
- ▶ **caDSR Overview**
- ▶ **caDSR and EVS End-to-End**
- ▶ **Transforming UML Models into caDSR Metadata**

# Introduction/Assumptions

- ▶ Denise Warzel – Program Manager for caDSR Software Development
  - caDSR is part of caCORE - Dr. Peter Covitz, Director, Bioinformatics Core Infrastructure
  - Formerly with IBM for 20 years
  - Background in applications programming and database design, software and process engineering, database migration and services and marketing
  - Started working with NCI on CDE project in 1999
  - Facilitated early CDE development efforts for various lung cancer consortiums
  - Began managing caDSR software development in 2002, starting with the Curation Tool and now responsible for all caDSR repository and tool development activities
- ▶ Assumptions
  - Familiarity with CDEs and caDSR Tools

## Goals of this session

- ▶ Provide a brief introduction to the NCI Cancer Data Standards Repository (caDSR)
  - Describe history and purpose
  - Review the metamodel which forms its basis
- ▶ Provide a brief overview of Common Data Elements (CDEs)
  - What is a data element?
  - How is a data element formed?
- ▶ Discuss CDEs End-to-End
  - EVS linkage
  - UML Models



# Pre-Test

## → Name the Icon



- Enterprise Vocabulary System
- “The Bible”



- cancer Data Standards Repository
- “The Birthday Cake”



- caDSR Admin Tool



- caDSR CDE Browser



- caDSR Curation Tool



## caDSR Background

- ▶ Desire to share and browse standardized terms to describe data collected for cancer clinical trials, almost exclusively by and for the Clinical Trials Evaluation Program (CTEP)
- ▶ Collections of data elements were “common” within specific diseases, trial types and phases = “common data element” = CDE
- ▶ Original Tool → CDE Browser
- ▶ CDEs caught on → more robust set of metadata and tools
- ▶ CDE Steering Committee was formed to assess the needs of the growing user community
  - Questions raised:
    - What attributes were needed to describe a piece of data unambiguously?
    - What type of tool(s) is needed?
    - How do we communicate to potential users which CDEs are “good” and which ones are still being developed? Which ones should they have access to and what should the developmental phases be called?



## caDSR Background

- ▶ CDE Steering Committee was introduced to \* ISO/IEC 11179 Information Technology – Data Management and Interchange – Metadata Registries 11179 Parts 1 -6
  - Roadmap for metadata development
    - ISO 11179 Part-1, Framework and specifications
    - ISO 11179 Part-2, Classification of data elements
    - ISO 11179 Part-3, Basic attributes of standardized data elements
    - ISO 11179 Part-4, Rules and guidelines for formation of definitions
    - ISO 11179 Part-5, Naming and identification principals for data elements
    - ISO 11179 Part-6, Registration of data elements
- ▶ CDE Steering Committee voted to adopt ISO/IEC 11179 and transform the CDE Browser and its contents into an ISO Compliant Metadata Repository
  - Benefits included:
    - Accelerate metadata development
    - Simplify ability for users to learn and understand caDSR metadata
    - Enable sharing of metadata with other metadata repositories
- ▶ Former caDSR monikers:
  - CDE Browser, DER (Data Element Repository), SBR (Standards Based Repository)

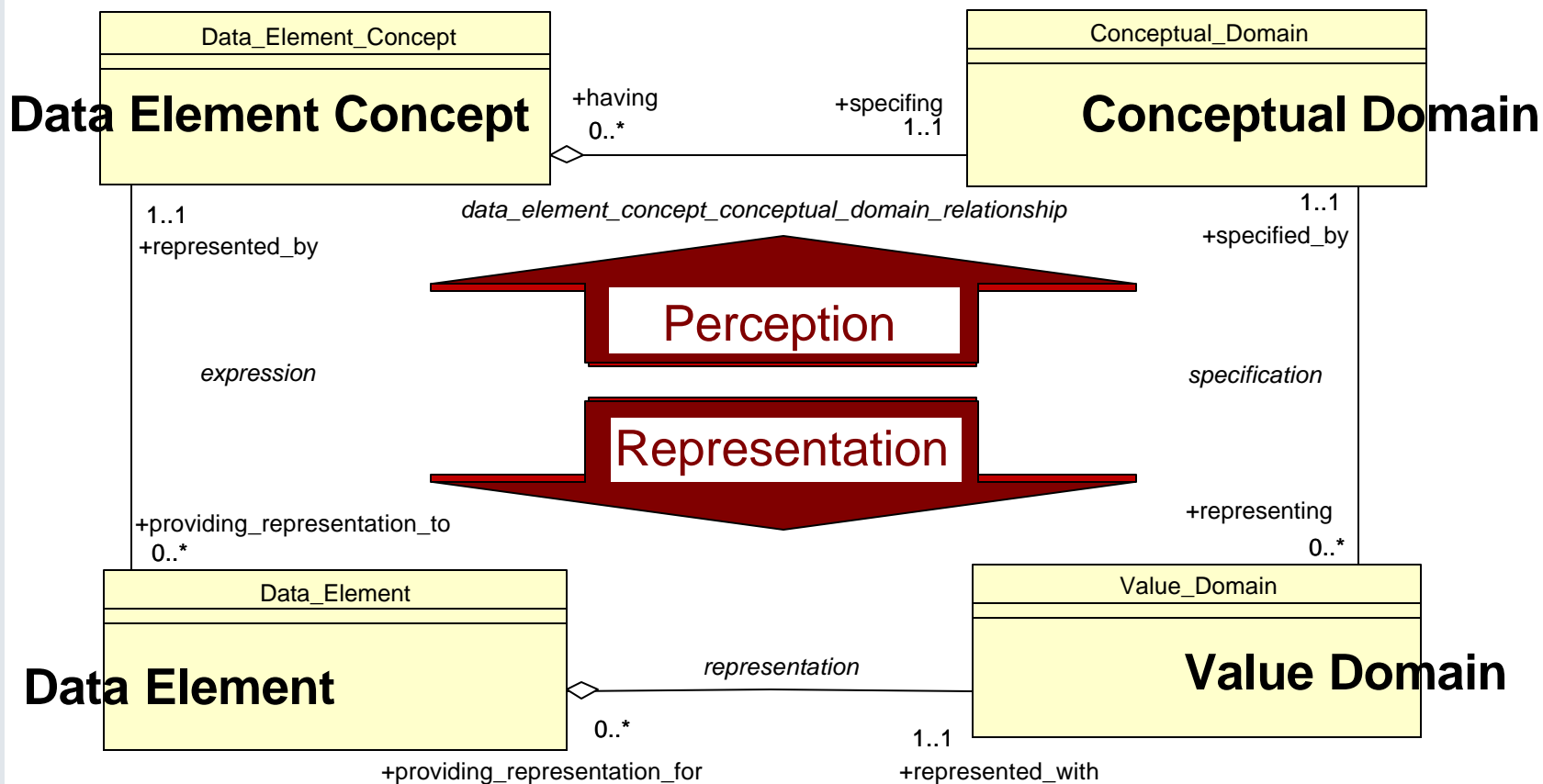
\*ISO (the International Organization for Standardization)/IEC (the International Electrotechnical Commission)



# caDSR Background

- ▶ Purpose:
  - Support the development and sharing of CDEs that are used as metadata descriptors for NCI-sponsored research
- ▶ Goals of caDSR Tools development:
  - Simplify development and creation of ISO/IEC 11179 compliant metadata by CDE Curators
  - Simplify consumption of CDEs by end users and application developers
  - Enhance reuse of CDEs for all
  - Enable semantic consistency across research domains
    - Build linkage to EVS concepts

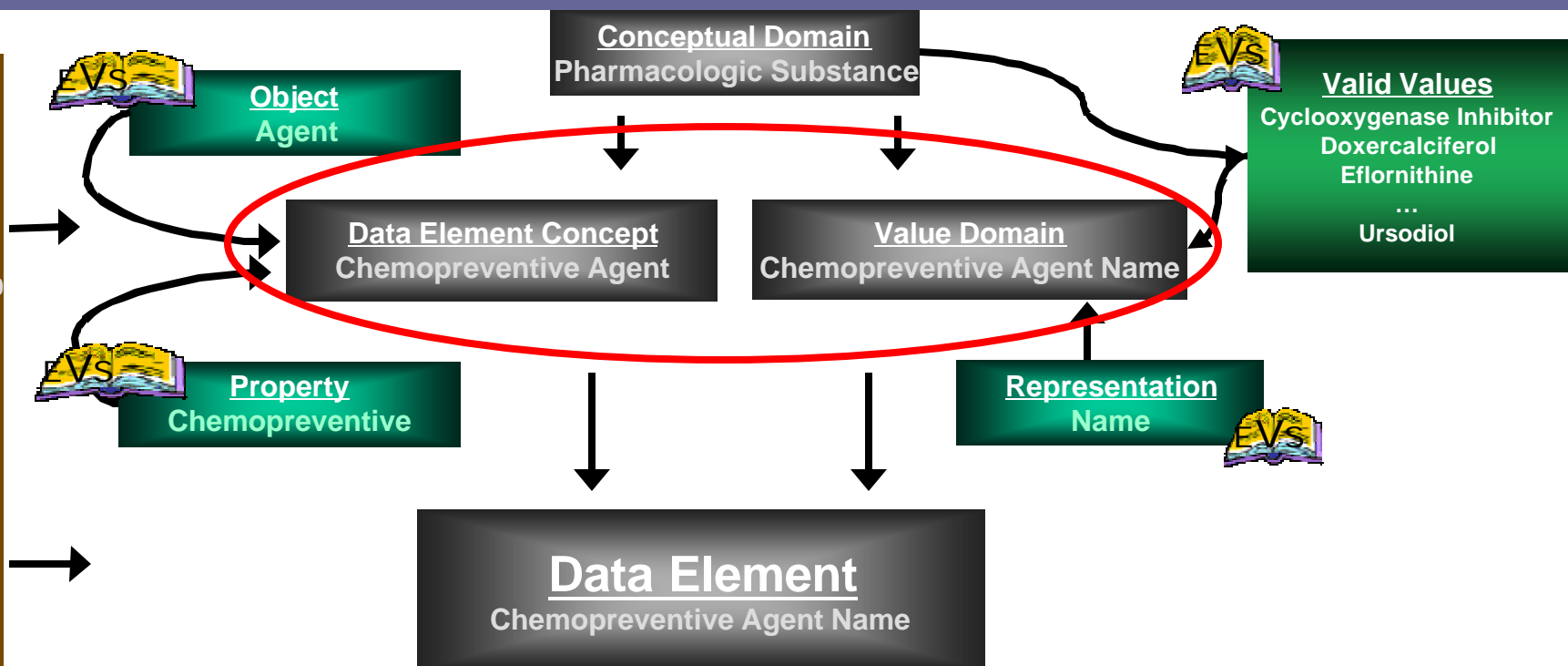
# Basic Metamodel Components





# caDSR Implementation ISO/IEC 11179 Model

Classification Schemes  
caDSR Training



.....

**Context**  
caCORE

# **caDSR End-to-End**

**But WHY?**

**So much metadata - So little time**

**Why bother to link to EVS?**

**Once I've defined them, how can a CDE be used to optimize research?**

# caDSR End-to-End

## What if?

- You could use the CDEs to gain knowledge?
- You could find other studies or data repositories with data you are interested in analyzing?
- You could leverage EVS to discover hidden relationships between datum?

**Would that be worth your time?**



# caDSR and EVS

*caDSR* is a metadata repository, *evolving into a Registry*

- maintains metadata to permit a user to locate the correct data element defining the characteristics of a piece of datum, an instance of a specific concept, in sufficient detail to be collected and stored on a computer

*EVS* is a terminology server

- provides services for synonymy, mapping between vocabularies, hierarchical structures, Subconcepts, Superconcepts, Roles, Semantic type, etc.

# caDSR End-to-End

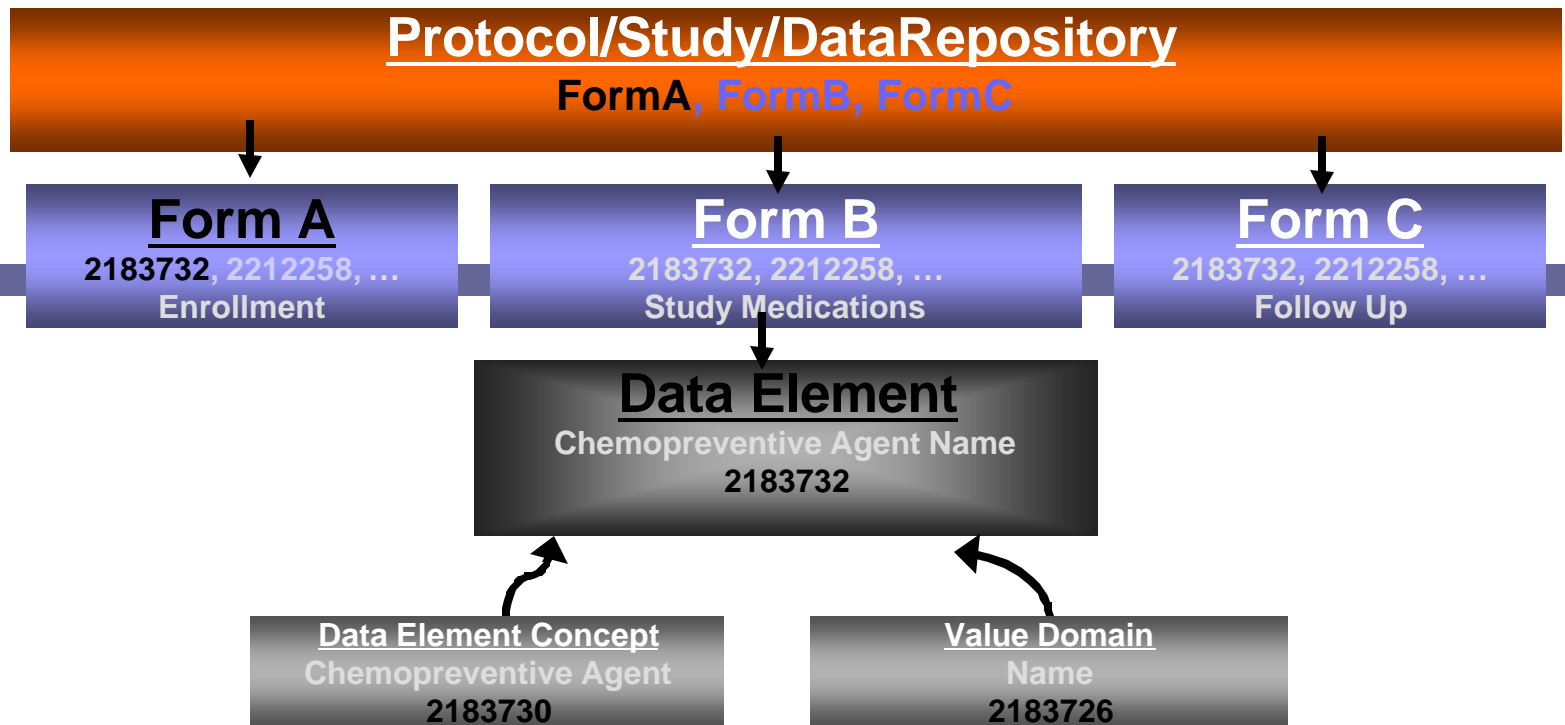
## Framework:

**Protocol** → Study, Repository

**Form** → Data collection instrument

**Data Element** → A specific representation/instance of a concept

caDSR



## DEC and VD Attributes:

Name

Definition

...

Alternate Name = **EVS LINKAGE**

EVS



caDSR

# Protocol/Study/DataRepository

FormA, FormB, FormC

Form A  
2183732, 2212258, ...  
Enrollment

Form B  
2183732, 2212258, ...  
Study Medications

Form C  
2183732, 2212258, ...  
Follow Up

Data Element  
Chemopreventive Agent Name  
2183732

Data Element Concept  
Chemopreventive Agent  
2183730

Value Domain  
Name  
2183726

Object Agent  
G1708, C0450442

Property  
Chemopreventive  
C15604, C0282515

Representation  
Name  
C25191,  
C0027365

Valid Values  
clooxygenase Inhibitor  
C1323  
Doxercalciferol  
Eflornithine  
...  
Ursodiol

Conceptual Domain  
Pharmacologic Substance  
2182571  
C1909, CL002470

EVs



**Data Element Concept - Microsoft Internet Explorer**

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media

Address <http://ncicb.nci.nih.gov/CDEBrowser/search?dataElementConceptDetails=9&tabClicked=1&PageId=ValidValuesGroup> Go Links

version: 1.0

### Data Element Concept Details

<b>Public ID:</b>	2183730
<b>Preferred Name:</b>	Chem_Agen
<b>Long Name:</b>	Chemoprevention Agent
<b>Definition:</b>	Use of chemotherapeutic A natural, synthetic or semisynthetic substance that has specific characteristics as the means of preventing the development of a specific disease. (Dorland, 27th ed at chemoprophylaxis)
<b>Context:</b>	caCORE
<b>Workflow Status:</b>	DRAFT NEW
<b>Version:</b>	1.0
<b>Conceptual Domain Preferred Name:</b>	PHARMACOLOGIC SUBSTANCE
<b>Conceptual Domain Context Name:</b>	caCORE
<b>Conceptual Domain Version:</b>	1.0
<b>Object Class Preferred Name:</b>	Agent
<b>Object Class Context:</b>	DCP
<b>Object Class Version:</b>	1.0
<b>Object Class Qualifier:</b>	
<b>Property Preferred Name:</b>	Chemoprevention
<b>Property Context:</b>	caCORE
<b>Property Version:</b>	1.0
<b>Property Qualifier:</b>	
<b>Origin:</b>	

Start In... C4... RE... ca... Fo... ft... Da... ca... ht... N... Ag... N... 3:03 PM



## caDSR Administration Tool

Release 2.1 [Home](#) [Logout](#) D:\ARZEL

## Search for Object Classes

**Basic** [Insert](#)

**Search Field(s):** Preferred Name  
All Names  
Long Name

**Search For:** agent% **Context:** DCP [List](#)

**Workflow Status:** % [List](#) **Definition:** %

**Version:** ☒ Latest Versions ☐ All Versions

Browse	Modify	Name	Type of Name	Preferred Name	Context	Version	Long Name	Workflow Status	Definition	Type of Definition
		Agent	Preferred Name	Agent	DCP	1	Agent	RELEASED	A natural, synthetic or semisynthetic substance that has specific characteristics. (NCI)	Primary Description

Record 1 of 1

Done

Start In... C4... RE... ca... Fo... ft... Da... ca... ca... N... Ag... N...

Internet

3:05 PM

## Object Class

## Agent

 Examples Admin Infos **Alternate Names** Alternate Definitions Admin Notes Description Detail Description Comments Documents Classification Schemes

## Maintain Object Classes

\*Preferred Name:

Agent

[EVS Concept List](#) [Notify EVS](#)

Long Name:

Agent

\*Definition:

A natural, synthetic or  
semisynthetic substance that  
has specific characteristics.  
(NCI)

Definition Source:

Source =&gt; Name: NCI,

Database:

\*Context:

DCP

[List](#)

Effective Begin Date:

[Dates](#)

Effective End Date:

[Dates](#)

Change Note:

\*Workflow Status:

RELEASED

[List](#)

Public ID:

2182707

Version:

1

Latest Version:

Yes

Apply

Delete

Undo

Add New

Done

Internet

Start

 In... C4... RE... ca... Fo... ft... Da... ca... ht... N... Ag... N...

3:07 PM





# caDSR Administration Tool

Release 2.1 [Home](#) [Logout](#) D:\ARZEL

**Object Class**

Object Class

Agent

Examples

Admin Infos

Alternate Names

Alternate Definitions

Admin Notes

Description

Detail Description

Comments

Documents

Classification Schemes



Maintain Alternate Names

* Alternate Name	* Type of Name	* Context	Language	Delete?
C0450442	UMLS_CUI	DCP	<a href="#">List</a>	<input type="checkbox"/>
C1708	NCI_CONCEPT_CODE	DCP	<a href="#">List</a>	<input type="checkbox"/>
No value exists.	NCI_META_CUI	DCP	<a href="#">List</a>	<input type="checkbox"/>

Records 1 to 3 of 3

[Apply](#) [Undo](#) [Add New](#) [ReQuery](#)

Note: \* - Mandatory field

Done, but with errors on page.

Start In... C4... RE... ca... Fo... ft... Da... ca... ht... N... Ag... N... Internet 3:09 PM







Conceptual Domains

Value Meanings

Documents

Help

Conceptual Domains



Maintain Conceptual Domain

PHARMACOLOGIC SUBS

Value Meanings

Examples

Alternate Names

Alternate Definitions

Description

Detail Description

Admin Notes

Comments

Documents

Contact

Associated Data Concepts

Associated Value Domains

Classification Schemes

\* Preferred Name: PHARMACOLOGIC SUBST

\* Long Name: Pharmacologic Substance

\* Definition: A natural, synthetic or semi-synthetic substance including

\* Context: caCORE [List](#)

Effective Begin Date: 04/03/2004 [Dates](#)

Effective End Date: [Dates](#)

Change Note:

Dimensionality:

\* Workflow Status: DRAFT NEW [List](#)

Origin: NCI Thesaurus [List](#)

Public ID: 2182571

Version: 1.00

Latest Version: Yes

Apply Delete Undo Add New

Version

Done

Internet

Start Inbo... Cen... C4D... RE: ... caBI... For... ftp:/... Dat... canc... http...

NCI ...

caBIG

2:31 PM



[Conceptual Domains](#)[Value Meanings](#)[Documents](#)[Help](#)[Conceptual Domains](#)[PHARMACOLOGIC SUBS](#)[Maintain Alternate Names](#)[Value Meanings](#)[Examples](#)[Alternate Names](#)[Alternate Definitions](#)[Description](#)[Detail Description](#)[Admin Notes](#)[Comments](#)[Documents](#)[Contact](#)[Associated Data Conce](#)[Associated Value Dom](#)[Classification Schemes](#)

* Alternate Name	* Type of Name	* Context	Language	Delete?
C1909	NCI_CONCEPT_CODE	<a href="#">List</a> CCR	<a href="#">List</a> ENGLISH	<input type="checkbox"/>
CL002470	NCI_META_CUI	<a href="#">List</a> CCR	<a href="#">List</a> ENGLISH	<input type="checkbox"/>

Records 1 To 2 of 2

[Apply](#)[Undo](#)[Add New](#)[ReQuery](#)

Note: \* - Mandatory field

# EVS caDSR Alternate Name EVS Linkage – (Automatically for Object Class, Property, Rep Term, Valid Value [3.0])

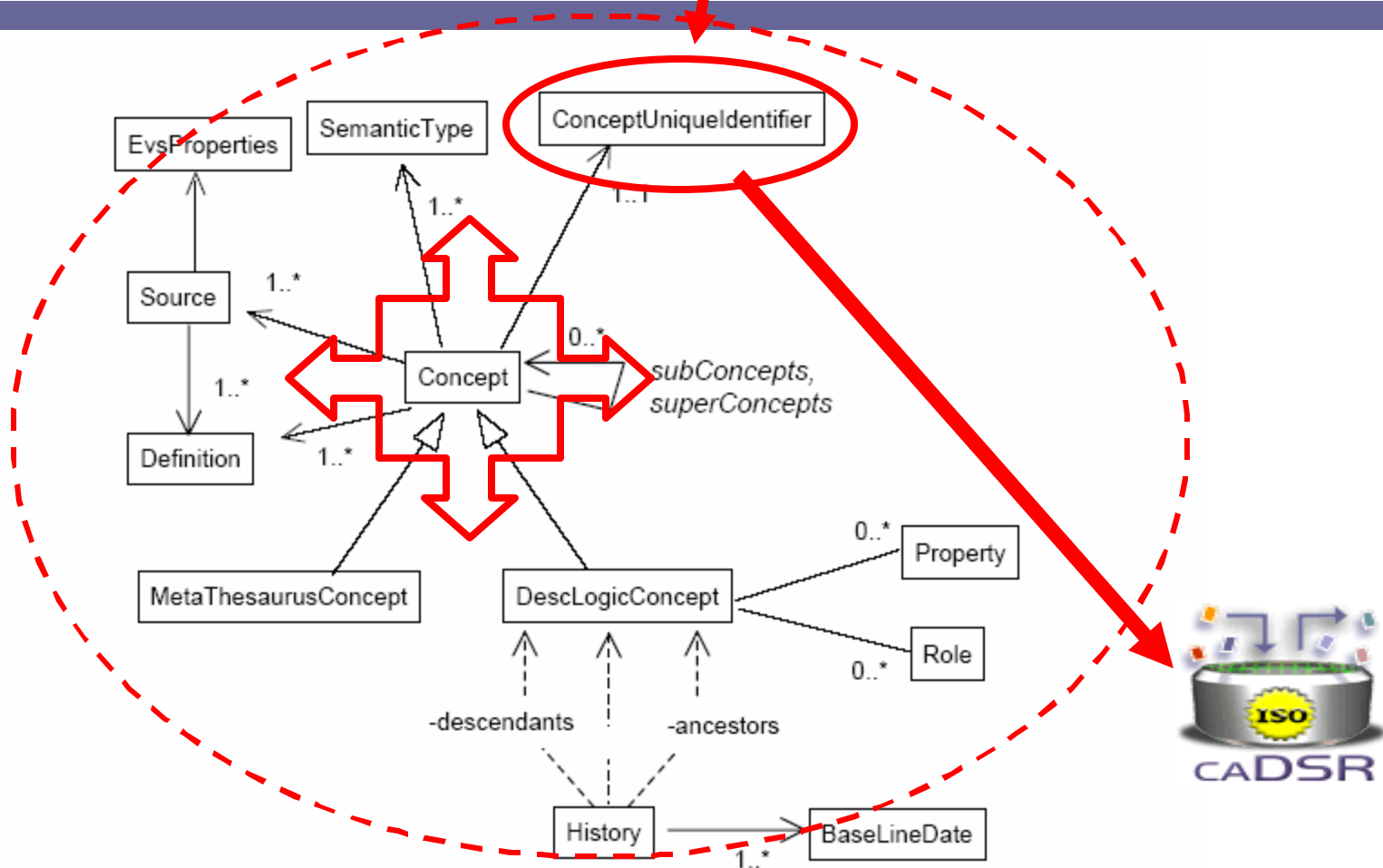


Figure 4.5-1 The caBIO EVS API domain object classes

NCI DTS Browser - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address [http://nciterns.nci.nih.gov/NCIBrowser/Connect.do?dictionary=NCI\\_Thesaurus&bookmarktag=1](http://nciterns.nci.nih.gov/NCIBrowser/Connect.do?dictionary=NCI_Thesaurus&bookmarktag=1) Go

**NATIONAL CANCER INSTITUTE**

**Go! Root Concepts**

**Go! Quick Search**

Pharmacologic substance

**Go! Advanced Search**

Relationship to other concepts

Anatomic\_Structure\_Has\_Location

**Go! Concepts visited (during this session)**

Max Results

10

Home Results About  
Help Customize Log out

**NCI\_Thesaurus Root Concepts**

- Abnormal Cell
- Anatomic Structure, System, or Substance
- Biological Process
- Chemotherapy Regimen
- Clinical or Research Activity
- Conceptual Entities
- Diagnostic, Therapeutic, and Research Equipment
- Diagnostic or Prognostic Factor
- Diseases, Disorders and Findings
- Drugs and Chemicals
- Experimental Organism Anatomical Concepts
- Experimental Organism Diagnoses
- Gene
- Gene Product
- Molecular Abnormality
- NCI Administrative Concepts
- Organisms
- Properties or Attributes
- Retired Concepts
- Techniques

**Concept Details**

**Bookmark this page**

**Pharmacologic Substance** **Printable Page** **History**

**Identifiers:**

name	Pharmacologic_Substance
code	C1909

**Information about this concept:**

NCI_META_CUI	CL002470
Preferred_Name	Pharmacologic Substance
Semantic_Type	Classification
Semantic_Type	Pharmacologic Substance
DEFINITION	NCI A natural, synthetic or semi-synthetic substance including endogenous body substance used to diagnose, prevent, maintain, treat or analyze abnormal and normal biological functions in vivo or in vitro. (NCI)
Synonym with source data	Pharmaceutical Agent SY NCI
Synonym with source data	Pharmaceuticals SY NCI
Synonym with source data	Pharmacologic Substance PT NCI
Synonym with source data	Pharmacological Substance SY NCI

Done

Start In... C4... RE:... caB... For... ftp... Dat... can... htt... NCI...

Internet

2:46 PM

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**CABIG** Informatics Grid



NCI DTS Browser - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address [http://ncitools.nci.nih.gov/NCIBrowser/Connect.do?dictionary=NCI\\_Thesaurus&bookmarktag=1](http://ncitools.nci.nih.gov/NCIBrowser/Connect.do?dictionary=NCI_Thesaurus&bookmarktag=1) Go

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Home Results About  
Help Customize Log out

**Go! Root Concepts**

**Go! Quick Search**  
Cyclooxygenase Inhibitor

**Go! Advanced Search**  
Relationship to other concepts  
Anatomic\_Structure\_Has\_Location

**Go! Concepts visited (during this session)**  
Max Results  
10

**NCI\_Thesaurus Root Concepts**

- Abnormal Cell
- Anatomic Structure, System, or Substance
- Biological Process
- Chemotherapy Regimen
- Clinical or Research Activity
- Conceptual Entities
- Diagnostic, Therapeutic, and Research Equipment
- Diagnostic or Prognostic Factor
- Diseases, Disorders and Findings
- Drugs and Chemicals
- Experimental Organism Anatomical Concepts
- Experimental Organism Diagnoses
- Gene
- Gene Product
- Molecular Abnormality
- NCI Administrative Concepts
- Organisms
- Properties or Attributes
- Retired Concepts
- Techniques

**Concept Details**  
Bookmark this page

**Cyclooxygenase Inhibitor** [Printable Page](#) [History](#)

**Identifiers:**

name	Cyclooxygenase_Inhibitor
code	C1323

**Relationships to other concepts:**

Chemical_or_Drug_Has_Accepted_Therapeutic_Use_For	Inflammation
---	--------------

**Information about this concept:**

Preferred_Name	Cyclooxygenase Inhibitor
Semantic_Type	Pharmacologic Substance
Unified Medical Language System Concept Identifier	C0085387
DEFINITION	MSH2002_06_01 Compounds or agents that combine with cyclooxygenase (PROSTAGLANDIN-ENDOPEROXIDE SYNTHASE) and thereby prevent its substrate-enzyme combination with arachidonic acid and the formation of eicosanoids, prostaglandins,

Done

Start | | | | | | | | | | | 1:11 AM

NCI DTS Browser - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address [http://nciters.nci.nih.gov/NCIBrowser/Connect.do?dictionary=NCI\\_Thesaurus&bookmarktag=1](http://nciters.nci.nih.gov/NCIBrowser/Connect.do?dictionary=NCI_Thesaurus&bookmarktag=1) Go

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Go! Root Concepts

Go! Quick Search

Cyclooxygenase Inhibitor

Go! Advanced Search

Relationship to other concepts

Anatomic\_Structure\_Has\_Location

Go! Concepts visited (during this session)

Max Results

10

Home Results About  
Help Customize Log out

☒ Diseases, Disorders and Findings  
☒ Drugs and Chemicals  
☒ Biomaterials  
☒ Drugs and Chemicals, Functional Classification  
☒ Agonist  
☒ Analog  
☒ Chemical Modifier  
☒ Clinical Study Element  
☒ Food and Food Product  
☒ Industrial Product  
☒ Pharmacologic Substance  
☒ Adjuvant  
☒ Analgesic Agent  
☒ Adjuvant Analgesic  
☒ Nonnarcotic Analgesic  
☒ Analgesic and Antipyretic  
☒ Acetaminophen  
☒ Nonsteroidal Antiinflammatory  
☒ Benzylamine Hydrochloride  
☒ Choline Magnesium Trisalicylate  
☒ Cyclooxygenase Inhibitor  
☒ Olsalazine  
☒ Pirfenidone  
☒ Sodium Salicylate  
☒ Tolmetin  
☒ Capsaicin

Drug

### Concept Details

Bookmark this page

Chemopreventive Agent

Printable Page History

**Identifiers:**

name	Chemopreventive_Agent
code	C1892

**Information about this concept:**

NCI_META_CUI	CL000204
Preferred_Name	Chemopreventive Agent
Semantic_Type	Pharmacologic Substance
DEFINITION	NCI-GLOSS (AN-tih-KAR-sin-o-JEN-ik) Pertaining to something that prevents or delays the development of cancer.
DEFINITION	NCI Substances that prevents or delays tumor formation
Synonym with source data	Chemopreventive Agent PT NCI
Synonym with source data	Chemopreventive SY NCI
Synonym with source data	anticarcinogenic PT NCI-GLOSS CDR0000044272
Synonym	Chemopreventive
Synonym	Chemopreventive Agent

Done

Start | Inbox - M... | ISO1117... | NCI DTS ... | Admin2.1... | http://ca... | RE: caBI... | caBIG\_En... | Internet

1:16 AM





NCI DTS Browser - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address [http://nciterns.nci.nih.gov/NCIBrowser/Connect.do?dictionary=NCI\\_Thesaurus&bookmarktag=1](http://nciterns.nci.nih.gov/NCIBrowser/Connect.do?dictionary=NCI_Thesaurus&bookmarktag=1) Go

**NATIONAL CANCER INSTITUTE**

Go! Root Concepts

Go! Quick Search

Cyclooxygenase Inhibitor

Go! Advanced Search

Relationship to other concepts

Anatomic\_Structure\_Has\_Location

Go! Concepts visited (during this session)

Max Results

10

Home Results About  
Help Customize Log out

☒ Diseases, Disorders and Findings  
☒ Drugs and Chemicals  
☒ Biomaterials  
☒ Drugs and Chemicals, Functional Classification  
☒ Agonist  
☒ Analog  
☒ Chemical Modifier  
☒ Clinical Study Element  
☒ Food and Food Product  
☒ Industrial Product  
☒ Pharmacologic Substance  
☒ Adjuvant  
☒ Analgesic Agent  
☒ Adjuvant Analgesic  
☒ Nonnarcotic Analgesic  
☒ Analgesic and Antipyretic  
☒ Acetaminophen  
☒ Nonsteroidal Antiinflammatory  
☒ Benzylamine Hydrochloride  
☒ Choline Magnesium Trisalicylate  
☒ Cyclooxygenase Inhibitor  
☒ Olsalazine  
☒ Pirofenidone  
☒ Sodium Salicylate  
☒ Tolmetin  
☒ Capsaicin

Drug

**Concept Details**

[Bookmark this page](#)

**Anethole Trithione** [Printable Page](#) [History](#)

**Identifiers:**

name	Anethole_Trithione
code	C246

**Information about this concept:**

CAS_Registry	532-11-6
Preferred_Name	Anethole Trithione
Semantic_Type	Organic Chemical
Semantic_Type	Pharmacologic Substance
Unified Medical Language System Concept Identifier	C0002937
DEFINITION	MSH2002_06_01 Choleretic used to allay dry mouth and constipation due to tranquilizers.
DEFINITION	NCI-GLOSS A drug that may reduce the risk of development or progression of cancer.
DEFINITION	NCI A non-classical folate antagonist, it is a synthetic inhibitor of the enzyme dihydrofolate reductase.
Synonym with source data	(p-Methoxyphenyl)trithiopropene SN NCI

Done

Start | | | | | | | | | | 1:17 AM





# caDSR → EVS Round Trip

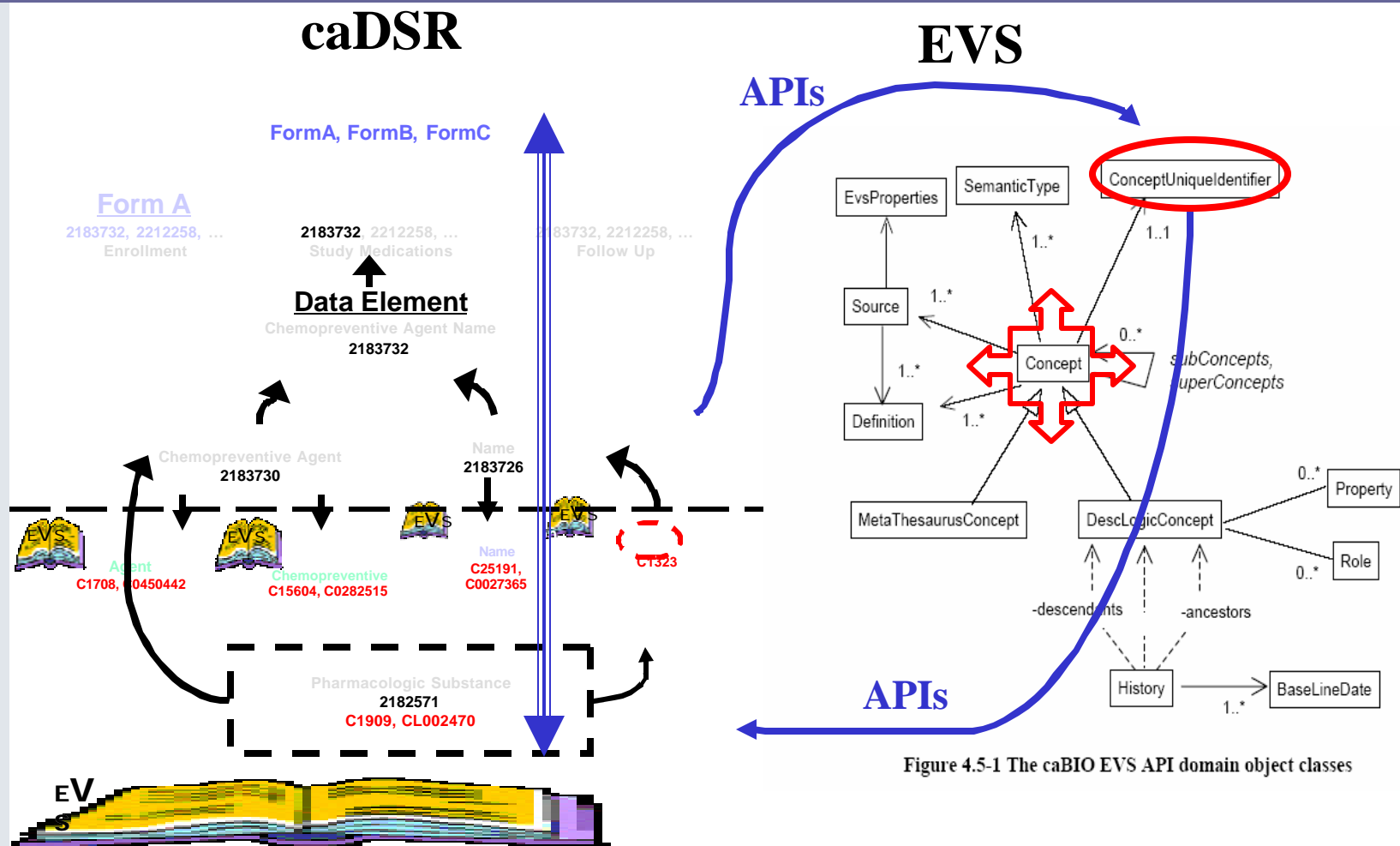


Figure 4.5-1 The caBIO EVS API domain object classes



## caDSR → EVS Round Trip

caDSR

EVS

**What other DEs have this Valid Value?**  
**What Studies were they collected in?**  
**Who is the owner of the protocol?**  
**Is the resource available for sharing?**  
**If its UML is loaded is there or can I build an API?**  
**How does that compare with my study?**  
**Which studies collected the related agent?**  
**What other CDEs were collected in the study?**  
**Can I do a meta-analysis?**  
**What are the differences in the outcomes?**  
**What roles does this agent it play?**  
**What other agents play a similar role? (inflammation)**  
**What can Meta tell me about this concept?**  
**What are its ingredients?**

APIs

APIs

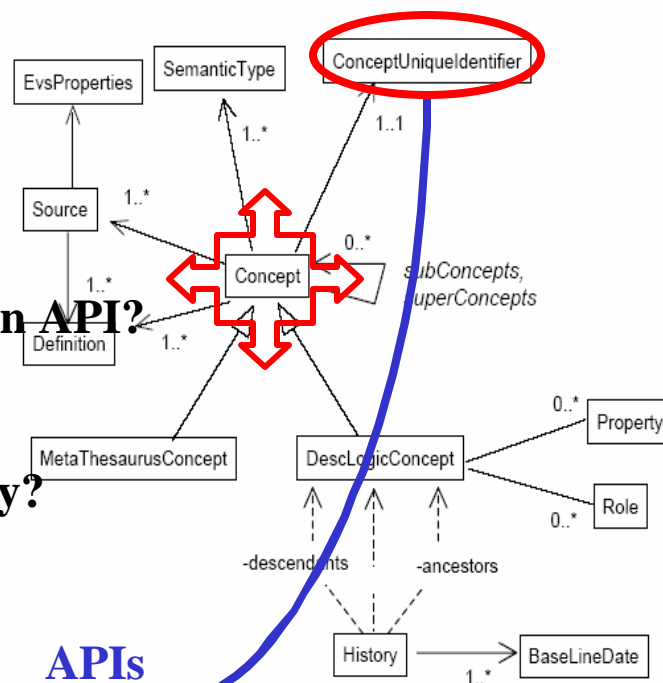


Figure 4.5-1 The caBIO EVS API domain object classes

....



# UML Model Loading

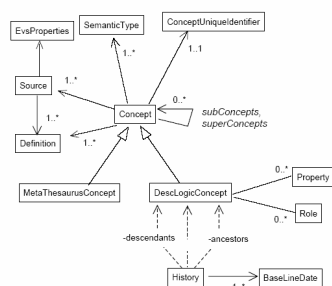


Figure 4.5-1 The caBIO EVS API domain object classes

→ .mdl file

→ EMF

**Set UML Loader Batch Defaults**

- Context
- Classification Scheme Item
- Reference Document
- Conceptual Domain\
- ...





# UML Model Transformation

1. Create UML in Rational Rose and save it
  - .mdl extension
2. Access class diagram and elements at UML Loader run-time
  - Eclipse Modeling Framework (EMF)
    - Meta-model and API
3. Transform UML to caDSR Metadata
  - Class = Data Element Concept (DEC)
    - Class name = DEC Preferred Name
    - Package qualified Class name = DEC Long Name
  - Class Attributes = Data Element
    - Data Element DEC = Attribute's corresponds Class
    - Data Element Long Name = Attribute Name
    - Data Element Preferred Name = Class Name + Attribute Name
    - Data Element Value Domain = Generic VD based on java datatype
  - Class Associations = Data Element Relationship (DECr)
    - DECr Description = Information such as cardinality, rolename, direction



# UML Model Loading Example

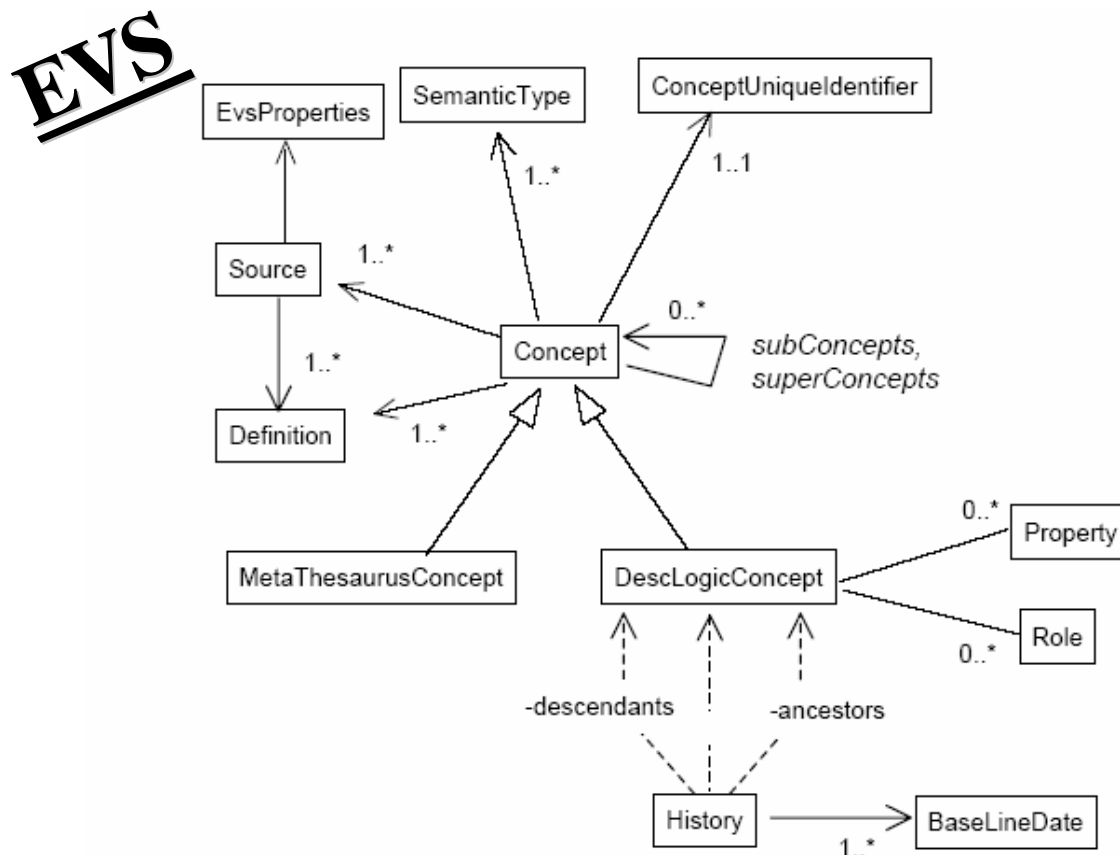



Figure 4.5-1 The caBIO EVS API domain object classes



# Set UML Loader Defaults in Admin Tool

http://cdsr-prod.nci.nih.gov/pls/cdsr/meta\_ui.cmraccess - Microsoft Internet Explorer

**NATIONAL CANCER INSTITUTE**  **caDSR Administration Tool** Release 2.1 [Logout](#) D:\WARZEL

**Metadata Browsing and Maintenance**

- [Data Element](#)
- [Data Element Concept](#)
- [Object Class](#)
- [Property](#)
- [Value Domain](#)
- [Representation](#)
- [Conceptual Domain](#)
- [Classification Scheme](#)

**Submissions/Registrations**

- [Stewards](#)
- [Submissions](#)
- [Registrations](#)

**System Administration**

- [Lookup Maintenance](#)
- [User Accounts](#)
- [User Groups](#)
- [Historical Data](#)
- [Security Maintenance](#)
- [Security Framework](#)

**Compliance Review Process**

- [Select CRF for Review](#)
- [Delete CRF](#)

**Protocol/Form/Template Browsing and Maintenance**

- [Protocol](#)
- [Form/Template](#)

**Other links**

- [Set UML Loader Defaults](#)
- [CDE Curation Tool](#)
- [CDE Browser](#)
- [CCRR](#)

Start | Inb... | caB... | ftp:... | NCI... | caB... | CD... | RE:... | can... | caB... | UM... | htt... | Internet | 10:30 PM



# Set UML Loader Defaults

cancer Data Standards Repository - Microsoft Internet Explorer

**NATIONAL CANCER INSTITUTE** **caDSR** **caDSR Administration Tool** Release 2.1 [Home](#) [Logout](#) [DWARZEN](#)

### Load Defaults

**Batch Id:**

**Context Name:**  [List](#)

**Context Version:**

**Version:**

**Workflow Status:**  [List](#)

**CD Preferred Name:**  [List](#) [New](#)

**CD Version:**

**CD Context Name:**

**CD Context Version:**

**VD Preferred Name:**  [List](#) [New](#)

**VD Version:**

**VD Context Name:**

**VD Context Version:**

**Reference Document Name:**

**Reference Document Type:**  [List](#)

**Reference Document Text:**

**Reference Document Name URL:**

**Classification Scheme:**  [List](#)

**Class scheme Item:**

Done

Start | In... | C... | ft... | N... | C... | C... | R... | C... | C... | U... | ca... | U... | D... | Internet

10:36 PM





# UML Model Transformation

Concept (caBIO Infrastructure - API Specification) - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print

Address http://ncicb.nci.nih.gov/content/coreftp/caBIO2-1\_JavaDocs Go

**caBIO API**

[All Classes](#)

Packages

- [gov.nih.nci.caBIO.bean](#)
- [gov.nih.nci.caBIO.util](#)
- [gov.nih.nci.caBIO.util.das](#)
- [gov.nih.nci.caBIO.util.evs](#)

**Overview Package Class Use Tree Deprecated Index Help**

[PREV CLASS](#) [NEXT CLASS](#) [FRAMES](#) [NO FRAMES](#)

SUMMARY: NESTED | [FIELD](#) | [CONSTR](#) | [METHOD](#) DETAIL: [FIELD](#) | [CONSTR](#) | [METHOD](#)

**gov.nih.nci.EVS.bean**

**Class Concept**

java.lang.Object

- gov.nih.nci.EVS.bean.Concept**

**All Implemented Interfaces:**

java.io.Serializable, [XMLInterface](#)

**Direct Known Subclasses:**

[DescLogicConcept](#), [MetaThesaurusConcept](#)

public class **Concept**  
extends java.lang.Object  
implements java.io.Serializable, [XMLInterface](#)

This class encapsulates the attributes of EVS Concept object.

**Version:**  
\$Revision: 1.21 \$

**Author:**  
EVS Team

**See Also:**  
[Serialized Form](#)

Internet

Start | Inbox... | caBIG... | caBIO... | NCI D... | CDE B... | CDE C... | caBIG... | Conc... | EVS M... | 11:14 PM

DEC Preferred Name = 'Concept'

DEC Long Name = 'gov.nih.nci.EVS.bean.Concept'





# UML Model Transformation

Concept (caBIO Infrastructure - API Specification) - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address [http://ncicb.nci.nih.gov/content/coreftp/caBIO2-1\\_JavaDocs](http://ncicb.nci.nih.gov/content/coreftp/caBIO2-1_JavaDocs) Go

**caBIO API**

[All Classes](#)

Packages

- [gov.nih.nci.caBIO.bean](#)
- [gov.nih.nci.caBIO.util](#)
- [gov.nih.nci.caBIO.util.das](#)
- [gov.nih.nci.caBIO.util.evs](#)

**Field Summary**

private static java.util.ArrayList	<b><a href="#">allAssociationMethods</a></b> Arraylist of all the association methods for toXMLDoc
private static java.util.Hashtable	<b><a href="#">associationMethods</a></b> This is a hash of all the methods for which toXML can rerun either a URL or the filled in object
private java.lang.String	<b><a href="#">conceptCode</a></b>
private <a href="#">ConceptUniqueIdentifier</a>	<b><a href="#">conceptUID</a></b>
private <a href="#">Definition</a> []	<b><a href="#">definitionArray</a></b> → DEC Relationship = “Definition”
private boolean	<b><a href="#">isSubConcept</a></b>
private static gov.nih.nci.EVS.net.EVSMangerProxy	<b><a href="#">mgrProxy</a></b> Maintains a reference (via a proxy to the EVSManager)
private java.lang.String	<b><a href="#">name</a></b> → DE Long Name = ‘name’ DE Preferred Name = ‘ConceptName’ (DEC Preferred Name + field name) Value Domain = “java.lang.String” DEC = “Concept”
private <a href="#">ConceptSearchCriteria</a>	<b><a href="#">searchcriteria</a></b>
private <a href="#">SemanticType</a> []	<b><a href="#">semanticType</a></b>
private static long	<b><a href="#">serialVersionUID</a></b>
private <a href="#">Source</a> []	<b><a href="#">source</a></b>

Start | Internet | 11:17 PM



# UML Models In CDE Browser

**caCORE → Classifications → Java Packages → EVS**

**Data Element Search**

caDSR Contexts >> caCORE >> Classifications >> JAVA PACKAGES >> EVS

Note: Enter/select search criteria and click search button to initiate search. The wildcard character is \*. Click the Help button above for more information on CDEBrowser.

Search For:  Permissible Value:   
Value Domain:  Clear Public ID:   
Data Element Concept:  Clear Classification:  Clear  
Version: Latest Version ☒ All Versions ☐ Context Use: Owned By/Used By   
Workflow Status: ALL  Search Field(s): ALL   
APPRVD FOR TRIAL USE   
CMTE APPROVED   
CMTE SUBMTD

Search Data Elements Clear New Search

[Download Data Elements to Excel] [Download Data Elements as XML]

Add to CDE Cart 1 - 33 of 33

Long Name	Document Text	Owned By	Used By	Context	Registration Status	Workflow Status	Public ID	Version
CUJ		caCORE				DRAFT MOD	2180530	2.1
caDSR		caCORE				DRAFT MOD	2180530	2.1



# UML Models In CDE Browser

List of Values - Data Element Concepts - Microsoft Internet Explorer

**CDE Browser**

Help

List of Values

**Data Element Concepts**

Please enter a keyword. This search will display all data element concepts which have the search criteria in their long name or preferred name. Wildcard character is \*.

Keyword

Restrict Search to Current Context ☒

Find Close

Preferred Name	Long Name	Context	Workflow Status	Definition	Version
<a href="#">Concept</a>	gov.nih.nci.EVS.bean.Concept	caCORE	DRAFT NEW	Some "thing" in the knowledge domain, such as a disease, an organ, or a location. More formally, describes the properties of a collection of individuals and can be interpreted as a unary predicate.	2
<a href="#">Concept</a>	gov.nih.nci.EVS.bean.Concept	caCORE	DRAFT MOD	Some "thing" in the knowledge domain, such as a disease, an organ, or a location. More formally, describes the properties of a collection of individuals and can be interpreted as a unary predicate.	2.1

Total Record Count: 2

User: Public User Version 2.1

Start | Inbox -... | caBIG\_... | Welco... | cancer ... | CDE Br... | CDE Cu... | caBIGc... | Concep... | List of ... | 11:39 PM



# UML Models In CDE Browser

CDE Browser - Microsoft Internet Explorer

Address: http://ncicb.nci.nih.gov/CDEBrowser/

**NATIONAL CANCER INSTITUTE** **CADSR**

caDSR Contexts >> caCORE >> Classifications >> JAVA PACKAGES >> EVS

Note: Enter/select search criteria and click search button to initiate search. The wildcard character is \*. Click the Help button above for more information on CDEBrowser.

Search For:  Permissible Value:

Value Domain:  Clear

Public ID:

Data Element Concept: Concept Clear

Classification:  Clear

Version: Latest Version ☒ All Versions ☐

Context Use: Owned By/Used By

Workflow Status: ALL  
APPRVD FOR TRIAL USE  
CMTE APPROVED  
CMTE SUBMTD

Search Field(s): ALL  
Preferred Name  
Long Name  
Document Text

Search Data Elements Clear New Search

[Download Data Elements to Excel](#) [Download Data Elements as XML](#)

Add to CDE Cart

1 - 2 of 2

<input type="checkbox"/>	Long Name	Document Text	Owned By	Used By	Context	Registration Status	Workflow Status	Public ID	Version
<input type="checkbox"/>	code		caCORE				DRAFT NEW	2184562	2.1
<input type="checkbox"/>	name		caCORE				DRAFT MOD	2180536	2.1

1 - 2 of 2

User: Public User Version 2.1

National Institutes of Health (NIH) U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES FIRSTGOV

Start | Internet | 11:40 PM





# UML Model in Curation Tool

CDE Curation: Search - Microsoft Internet Explorer

Address: <http://ncicb.nci.nih.gov/cdecurate/NCICurationServlet?reqType=showResult>

**NATIONAL CANCER INSTITUTE** **CADSR** **CDE Curation Tool**

User Name: dwarzel

**Search** **Create** **Edit** **Options** **Help** **Logout**

1) Search For: Data Element Concept

2) **Class Scheme Items**

- Conceptual Domain
- CRF Questions
- Data Element
- Data Element Concept
- Value Domain
- Permissible Value
- Object Class
- Property
- Context**

3) Value Domain

4) Object Class

Context: caCORE

Version: Latest All

Workflow Status: All Status

APPRVD FOR TRIAL USE

CMTE APPROVED

5) Display Attributes: Update

Long Name

Public ID

Version

Workflow Status

Start Search

**Search Results for**

No Records Found

	<a href="#">Data Element Concept Long Name</a>	<a href="#">Public ID</a>	<a href="#">Version</a>	<a href="#">Workflow Status</a>	<a href="#">Context</a>	<a href="#">Definition</a>
--	--	---------------------------	-------------------------	---------------------------------	-------------------------	----------------------------

Enter the keyword to search a component

Start | Internet

12:07 AM



# UML Model in Curation Tool

## Retrieve all Data Elements associated with EVS

CDE Curation: Search - Microsoft Internet Explorer

Address: http://ncicb.nci.nih.gov/cdecurate/NCICurationServlet?reqType=search&cs=evs

NATIONAL CANCER INSTITUTE CADSR CDE Curation Tool

User Name : dwartzel

Search Create Edit Options Help Logout

1) Search For: Class Scheme Items

2) Search In: Names & Definition

3) Enter Search Term: evs\*  
use \* as wildcard

4) Filter By: Context: All Contexts  
Classification Schemes: All Schemes

5) Display Attributes: Update

Start Search

Show Selected Rows Get Associated Clear Records

Search Results for Class Scheme Items - evs\*

1 Records Found

<input checked="" type="checkbox"/>	<a href="#">CSI Name</a>	<a href="#">CSI Type</a>	<a href="#">CSI Definition</a>	<a href="#">CS Long Name</a>	<a href="#">Context</a>
<input checked="" type="checkbox"/>	EVS	GROUP_TYPE	EVS Java Package	JAVA PACKAGES	caCORE

javascript:getAssocDEs();

Internet 10:57 PM



# UML Model in Curation Tool

## Retrieve all Data Elements associated with EVS

CDE Curation: Search - Microsoft Internet Explorer

Address: http://ncicb.nci.nih.gov/cdecurate/NCICurationServlet?reqType=search&cs=evs

NATIONAL CANCER INSTITUTE CADSR CDE Curation Tool

User Name : dwartzel

Search Create Edit Options Help Logout

1) Search For: Class Scheme Items

2) Search In: Names & Definition

3) Enter Search Term: evs\*  
use \* as wildcard

4) Filter By:  
Context: All Contexts  
Classification Schemes: All Schemes

5) Display Attributes: Update

Start Search

Show Selected Rows Get Associated Clear Records

Search Results for Class Scheme Items - evs\*

1 Records Found

<input checked="" type="checkbox"/>	<a href="#">CSI Name</a>	<a href="#">CSI Type</a>	<a href="#">CSI Definition</a>	<a href="#">CS Long Name</a>	<a href="#">Context</a>
<input checked="" type="checkbox"/>	EVS	GROUP_TYPE	EVS Java Package	JAVA PACKAGES	caCORE

JavaScript: getAssocDEs();

Internet 10:57 PM



# UML Model in Curation Tool

CDE Curation: Search - Microsoft Internet Explorer

Address: <http://ncicb.nci.nih.gov/cdecurate/NCICurationServlet?reqType=showResult>

2) Search In: Names & Definition

3) Enter Search Term:

use \* as wildcard

4) Filter By: **Advanced Filter**

Context: caCORE

Context Use:

- ☐ Owned By
- ☐ Used By
- ☒ Owned By/Used By

Version:

- ☐ Latest
- ☒ All

Workflow Status:

- All Statuses
- APPRVD FOR TRIAL USE
- CMTE APPROVED

Registration Status:

- All Statuses

5) Display Attributes: Update

Long Name

Public ID

Version

Registration Status

Start Search

### Search Results for Data Element associated with Class Scheme Items - EVS

55 Records Found

<input checked="" type="checkbox"/>	<a href="#">Data Element Long Name</a>	<a href="#">Public ID</a>	<a href="#">Version</a>	<a href="#">Registration Status</a>	<a href="#">Workflow Status</a>	<a href="#">Owned By Context</a>	<a href="#">Used By Context</a>	<a href="#">Definition</a>	<a href="#">Data Element Concept Long N</a>
<input type="checkbox"/>	abbreviation	2180545	2.0		DRAFT NEW	caCORE		The abbreviation of a source in a vocabulary; a source is the authority responsible for a given entry, e.g. SNOWMED, NCI, GO.	gov.nih.nci.EVS.bean.Source
<input type="checkbox"/>	abbreviation	2180545	2.1		DRAFT MOD	caCORE		The abbreviation of a source in a vocabulary; a source is the authority responsible for a given entry, e.g. SNOWMED, NCI, GO.	gov.nih.nci.EVS.bean.Source
<input type="checkbox"/>	action	2180522	2.0		DRAFT NEW	caCORE		An editing action in the NCI Thesaurus.	gov.nih.nci.EVS.bean.History
<input type="checkbox"/>	action	2180522	2.1		DRAFT MOD	caCORE		An editing action in the NCI Thesaurus.	gov.nih.nci.EVS.bean.History
<input type="checkbox"/>	actionDate	2180521	2.0		DRAFT NEW	caCORE		The baseline date in which an edit action occurred.	gov.nih.nci.EVS.bean.History
<input type="checkbox"/>	actionDate	2180521	2.1		DRAFT MOD	caCORE		The baseline date in which an edit action occurred.	gov.nih.nci.EVS.bean.History
<input type="checkbox"/>	code	2184561	2.1		DRAFT NEW	caCORE		Datatype: java.lang.String	gov.nih.nci.EVS.bean.DescLogicCor
<input type="checkbox"/>	code	2184561	2.1		DRAFT NEW	caCORE		Datatype: java.lang.String	gov.nih.nci.EVS.bean.MetaThesauru
<input type="checkbox"/>	code	2184562	2.1		DRAFT NEW	caCORE		Concept identifier used in EVS vocabularies represented in Description Logic (served by the DTS).	gov.nih.nci.EVS.bean.Concept
<input type="checkbox"/>	conceptCode	2180537	2.0		DRAFT NEW	caCORE		Concept identifier used in EVS vocabularies represented in Description Logic (served by the DTS).	gov.nih.nci.EVS.bean.Concept
<input type="checkbox"/>	conceptCode	2180537	2.0		DRAFT NEW	caCORE		Concept identifier used in EVS vocabularies represented in Description Logic (served by the DTS).	gov.nih.nci.EVS.bean.Concept





# UML Model in Admin Tool

cancer Data Standards Repository - Microsoft Internet Explorer

Address: http://cdsr-prod.nci.nih.gov/pls/cadsr/meta\_ui.cmr?p\_url=dec\_basic\_search\$.startup

**NATIONAL CANCER INSTITUTE** **caDSR Administration Tool**

Release 2.1 [Home](#) [Logout](#) [DWARZEN](#)

Search for Data Element Concept Administration

**Data Element Concept**

Search Field: **Long Name**

Search For: %evs.bean%

Object Class: % [List](#)

Date Created: % [Dates to](#) % [Dates](#)

Created By: % [List](#)

Context: caCORE [List](#)

Workflow Status: % [List](#)

Definition: %

Property: % [List](#)

Date Modified: % [Dates to](#) % [Dates](#)

Modified By: % [List](#)

**= %evs.bean%**

[Search](#) [Clear](#)

Browse	Modify	Name	Name Type	Preferred Name	Owner Context	Version	Long Name	Workflow Status	Object Class	Property	Definition
		gov.nih.nci.EVS.bean.BaseLineD	Long Name	BaseLineDate	caCORE	2.10	gov.nih.nci.EVS.bean.BaseLineDate	DRAFT MOD			Reflects the release date of the NCI Thesaurus when this definition went public.
		gov.nih.nci.EVS.bean.Concept	Long Name	Concept	caCORE	2.10	gov.nih.nci.EVS.bean.Concept	DRAFT MOD			Some "thing" in the knowledge domain, such as a disease, an organ, or a location. More formally, describes ...
		gov.nih.nci.EVS.bean.ConceptUn	Long Name	ConceptUniqueIdentifier	caCORE	2.10	gov.nih.nci.EVS.bean.ConceptUniqueIdentifier	DRAFT			AI

javascript:btnMaintFrmWin('ui\_tools.renderLink?p\_link\_name=DEC\_IRUD\_FRAME&p\_arr\_name=DEC\_IDSEQ&p\_arr\_value=DBCE1CC4-A07D-2394-E

Internet

Start | In... | C4... | ca... | C... | ft... | N... | Ag... | N... | C... | RE... | Cl... | ca... | ht... | 9:12 PM



# UML Model Loading Example

“Loaded”

http://cadsr-prod.nci.nih.gov/pls/cadsr/ui\_tools.renderLink?p\_link\_name=DEC\_IRUD\_FRAME&p\_arr\_na - Microsoft Internet Explorer

**NATIONAL CANCER INSTITUTE** **caDSR** **caDSR Administration Tool** Release 2.1 [Home](#) [Logout](#) [DWARZEN](#)

**Data Element Concept** **Associated Data Elements** **Documents** **Help**

**Concept**

**Maintain Data Element Concepts**

**\* Preferred Name:**

**Long Name:**

**\* Definition:**

**\* Context:**  [List](#)

**Object Class Concept:**  [List](#)

**Object Class Qualifier:**  [List](#)

**Property Concept:**  [List](#)

**Property Qualifier:**  [List](#)

**\* Conceptual Domain:**  [List](#)

**Effective Begin Date:**  [Dates](#)

**Effective End Date:**  [Dates](#)

**Change Note:**

**\* Workflow Status:**  [List](#)

**Origin:**  [List](#)

**Public ID:** 2180509

**Version:** 2.10

**Latest Version:** Yes

**Associated Data Elements**

**Documents**

**Help**

**Related Data Concepts**

**Definition**

**ConceptUniqueIdent**

**Source**

**Classification Schemes**

**Classification Schemes**

“Curate”



# UML Model Loading Example

## Class Associations

http://cadsr-prod.nci.nih.gov/pls/cadsr/ui\_tools.render... link\_name=DEC\_IRUD\_FRAME&p\_arr\_na - Microsoft Internet Explorer

**NATIONAL CANCER INSTITUTE** **caDSR Administration Tool** Release 2.1 [Home](#) [Logout](#) [DWARZEN](#)

**Data Element Concept** **Associated Data Elements** **Documents** **Help**

**Data Element Concept**

- AnimalModel
  - Examples
  - Alternate Names
  - Alternate Definition
  - Description
  - Detail Description
  - Admin Notes
  - Comments
  - Documents
    - Admin Infos
    - Contact
  - Associated Data Elements
  - Related Data Concept**
    - PartyRole
    - Availability
    - Publication
    - Taxon
    - TargetedModification
    - CarcinogenicInteraction
    - GenomicSegment
    - InducedMutation
    - Transgene
    - CellLine
    - Image
    - Therapy

**Related Data Concept - PartyRole**

* Relationship	Relationship Description	* Related Data Concept	Related Version	Related Definition
HAS_A <a href="#">List</a>	Role=partyRoles; ClassName=PartyRole; LowerBound=0; UpperBound=-1; Bidirectional=No	PartyRole <a href="#">List</a>	2.10	The PartyRole is use

[Apply](#) [Undo](#) [Add New](#)

Other Information



# UML Model Loading Example

## Class Attributes

http://cadsr-prod.nci.nih.gov/pls/cadsr/ui\_tools.renderLink?p\_link\_name=DE\_IRUD\_FRAME&p\_arr\_nam - Microsoft Internet Explorer

Address http://cadsr-prod.nci.nih.gov/pls/cadsr/ui\_tools.renderLink?p\_link\_name=DE\_IRUD\_FRAME&p\_arr\_name=DE\_IDSEQ&p\_arr\_value=DBCE1CC4-AB7B-2394-E034-0003BA12F5E7 Go

**NATIONAL CANCER INSTITUTE** **caDSR Administration Tool** Release 2.1 [Home](#) [Logout](#) [DVA/RZE](#)

[Permissible Values](#) [Data Element Concept](#) [Documents](#) [Help](#)

**Maintain Data Element**

**Data Element**

- ConceptName
- Value Domain
- Examples
- Alternate Names
- Alternate Definitions
- Admin Notes
- Description
- Detail Description
- Comments
- Documents
- Related Data Elements
- Admin Infos
- Contact
- Derived Data Elements
- Classification Schemes

**\* Preferred Name:**

**Long Name:**

**\* Definition:**

**\* Context:**  [List](#)

**\* Value Domain:**  [List](#) [New](#)

**\* Data Element Concept:**  [List](#) [New](#)

**Effective Begin Date:**  [Dates](#)

**Effective End Date:**  [Dates](#)

**Change Note:**

**\* Workflow Status:**  [List](#)

**Origin:**  [List](#)

**Registration Status:**  [List](#)

**Question:**

**Public ID:** 2180536

**Version:** 2.10

**Latest Version:** Ver

javascript:uit('a2f09c06-4fcd-44c2-0000-00fd0813e9cf')

Start | Inbox - Micr... | caBIG\_End... | ISO11179 -... | cancer Dat... | CDE Brows... | Admin2.1\_S... | http://cad... | Internet | 12:23 AM | Biomedical informatics Grid

# Operating Environments

- ▶ Database Repository
  - Oracle 8i
- ▶ Administration Tool
  - Oracle PL/SQL, Oracle 9i Application Server
- ▶ CDE Browser
  - Java, Oracle 9i Application Server
- ▶ CDE Curation Tool
  - Jakarta Tomcat
- ▶ Case Report Form (CRF) Loader
  - Visual Basic, MS Excel GUI, Oracle 8i Client
- ▶ Compliance Review Tool (CRT)
  - Visual Basic, MS Excel GUI, Oracle 8i Client
- ▶ CDE Compliance Review Response Tool (CCRR)
  - Java, JSP, Java Beans, Oracle 9i Application Server

# caDSR Team

## ▶ NCI

- Peter Covitz
- Denise Warzel
- caDSR Context Administrators

## ▶ ScenPro

- Bill McCurry
- Mike Gately
- Ken Sims
- Mark Swenholt
- Jennifer Brush
- Tom Phillips
- Mike Holck
- Smita Hastak
- Wendy Verhoef

## ▶ Oracle

- Edmond Mulaire
- Ram Chilukuri
- Prerna Aggarwal
- Christophe Ludet
- Daniel Ladino

## ▶ Science Applications International Corporation (SAIC)

- Kathleen Gundry
- Tommie Curtis
- Brenda Maeske
- Mead Walker



# Questions?



## ▶ caDSR Home Page

- <http://ncicb.nci.nih.gov/core/caDSR>
- Biweekly Software Meetings Monday's 3:00 pm EST (Warzel)
- Alternate bi-weekly Content Meetings 3:00 pm EST (Curtis)



## ▶ Administration Tool

- <http://cadsr-prod.nci.nih.gov>



## ▶ CDE Curation Tool

- <http://ncicb.nci.nih.gov/cdecurate>



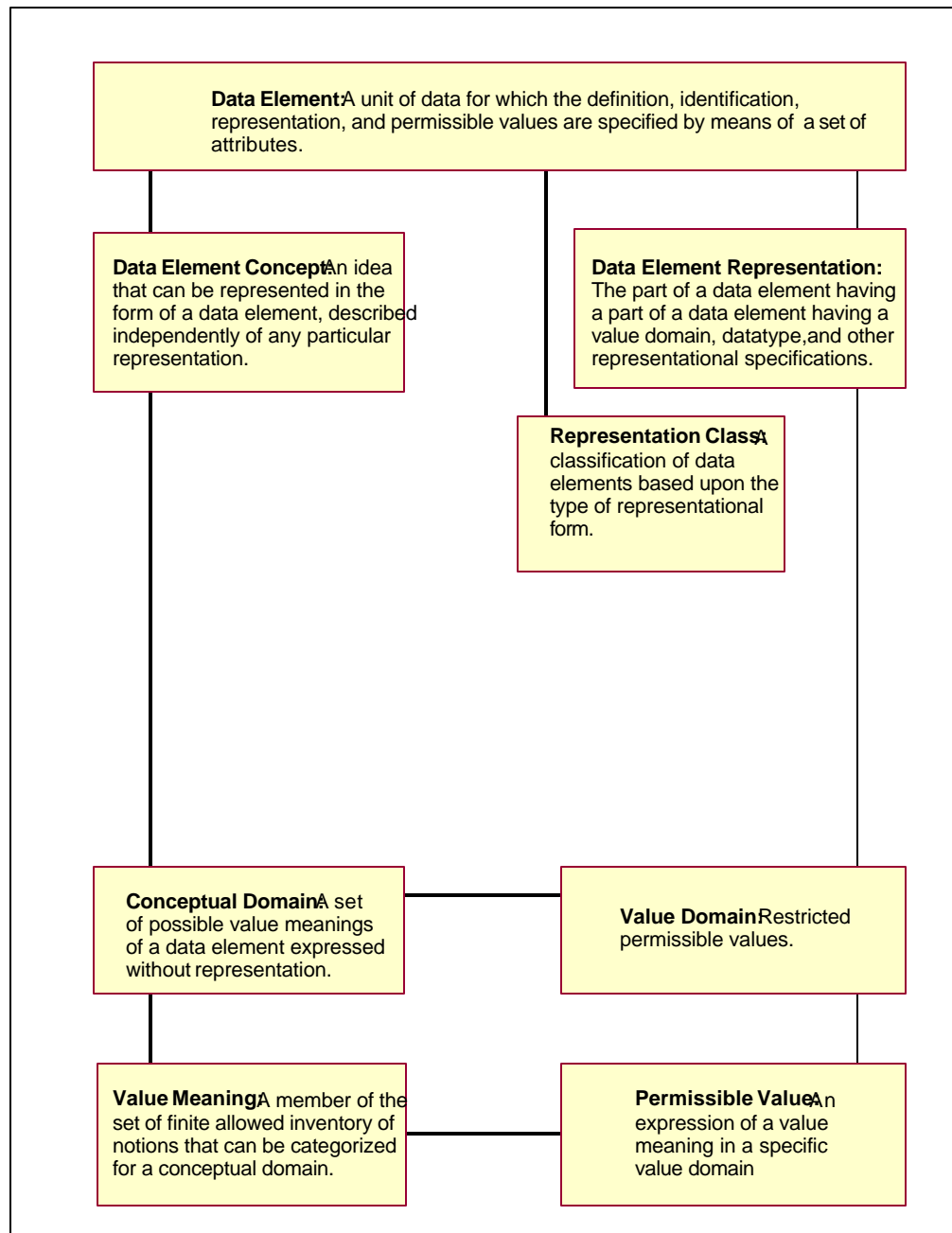
## ▶ CDE Browser

- <http://ncicb.nci.nih.gov/cdebrowse>

▶ warzeld@[mail.nih.gov](mailto:mail.nih.gov)

▶ 303-722-9446





# Terms and Definitions for ISO/IEC 11179-3